

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/030,413	BAKKE, STIG	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jennifer H Gay	3672	

All participants (applicant, applicant's representative, PTO personnel):

(1) Jennifer H Gay. (3)\_\_\_\_\_.

(2) Kenyon Ripple. (4)\_\_\_\_\_.

Date of Interview: 22 February 2004.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☒ Yes e) ☐ No.  
If Yes, brief description: Attachment A.

Claim(s) discussed: \_\_\_\_\_.

Identification of prior art discussed: Portman et al. (US 6,561,289).

Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Continuation Sheet.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

#### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

##### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant's attorney contact the examiner regarding the Final rejection mailed 2/6/04 and requested that the examiner review a proposed amendment (Attachment A). After a review of the proposed claim changes and the arguments, the examiner informed applicant's attorney that the proposed amendment could not be entered because it added more claims than were cancelled. However, based on the arguments presented, the examiner agreed that Portman et al. could not be used to reject the claims. The examiner intends to withdraw the finality of the case and reopen the prosecution. A Office Action to follow..

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Stig Bakke

Serial No.: 10/030,413

Confirmation No.: 9005

Filed: May 7, 2002

For: TOOL FOR CHANGING  
THE DRILLING  
DIRECTION WHILE  
DRILLING

Group Art Unit: 3672

Examiner: Jennifer Hawkins Gay

MAIL STOP AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING 37 CFR 1.8	
I hereby certify that this correspondence is being deposited on _____ with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.	
Date _____	Signature _____

Dear Sir:

**RESPONSE TO FINAL OFFICE ACTION DATED FEBRUARY 6, 2004**

In response to the Final Office Action dated February 6, 2004, having a shortened statutory period for response set to expire on May 6, 2004, please enter this response and reconsider the claims pending in the application for reasons discussed below. The Commissioner is hereby authorized to charge counsel's Deposit Account No. 20-0782/WEAT/0332/WBP \$54.00 for excess claims and for any fees, including extension of time fees or excess claim fees, required to make this response timely and acceptable to the Office.

**Amendments to the Specification** begin on page 2 of this paper. **Amendments to the Claims** are reflected in the listing of claims which begins on page 3 of this paper. **Remarks/Arguments** begin on page 9 of this paper.

**IN THE SPECIFICATION:**

Please replace paragraph [0001] with the following amended paragraph:

[0001] This application claims ~~the benefit priority to and is a national stage of the~~ Norwegian application 19993138 filed June 24, 1999, and international application PCT/NO00/00213, filed June 21, 2000, which claims priority to Norwegian application 19993138, filed June 24, 1999.

Please replace paragraph [0022] with the following amended paragraph:

[0022] The rotation ends by relief of the pressure of the fluid. Consequently, the spring force of the valve body spring 24 will exceed the fluid pressure and displace the lower valve body part 23 up along the valve body 21, so that the valve opens. When the valve is open, the spring force of the compressed piston spring 25 in the annular space 17 will displace the piston 18 up the passage of the tool 1. During the return movement of the piston 18, the catch elements 50 of the ratchet mechanism 28 will allow rotation of the piston 18, whereas the lower housing element 5 remains in a position, in which the housing element 5 does not rotate. Similarly, the ~~rotatable~~ rotational connection 8 between the housing elements 4, 5 will contribute to the same, if the ratchet mechanism cannot fully manage to take care of the rotation returning the piston 18. By major changes of direction the above-mentioned cycle is repeated until the desired turning of the bent sub has been reached.

**IN THE CLAIMS:**

Please amend the claims as follows:

1. (Previously Presented) The tool of claim 16, comprising:  
at least two housing elements rotationally connected to one another in one direction, wherein a first housing element has a first guide;  
a first passage for fluid through the tool;  
a hydraulic piston rotationally connected to a second housing element and having a second guide, wherein the guides and the piston-second housing connection are arranged, by the piston's axial displacement, to rotate the second housing element with respect the first housing element and necessary fluid pressure for moving the piston is obtained by choking the fluid flow through the tool.
2. (Previously Presented) The tool of Claim 1, wherein the first guide is formed in an inner wall of the first housing element, and the second guide is formed in an outer wall of the piston.
3. (Previously Presented) The tool of Claim 2, wherein the guides for the forced guiding of the rotation comprise twisted splines.
4. (Previously Presented) The tool of Claim 3, wherein the first spline extends along a substantial length of the first housing element and the second spline along a substantial length of the piston.
5. (Previously Presented) The tool of Claim 1, further comprising a valve comprising a valve seat formed at the upper end of a bore adapted to provide a passage through the piston, a valve body and a valve mechanism adapted for choking and opening the valve by increase and relief, respectively, of the fluid pressure in the

tool.

6. (Previously Presented) A tool adapted for changing the direction of drilling with drilling equipment comprising a drill string, drill string sub, drilling engine and drill bit, wherein the tool is positioned between the drill string and the drill string sub and wherein the tool comprises:

housing elements, which are connected to one another, and wherein the tool has a passage for fluid, and wherein the tool is equipped with a hydraulic piston having a set of cooperating guides where the guides are arranged for, by the pistons axial displacement, a forced guiding of the rotation of a first housing element with respect to the other housing elements, and where necessary fluid pressure for moving the piston is obtained by choking the fluid flow through the tool and wherein a lower intermediate housing element and a lower housing element are connected by a one direction rotatable connection; and

a valve comprising:

a valve seat formed at the upper end of a bore adapted to provide a passage through the piston;

a valve body; and

a valve mechanism adapted for choking and opening the valve by increase and relief, respectively, of the fluid pressure in the tool, wherein the valve mechanism is formed by an upper and a lower valve body part adapted for displacement along the valve body, so that the lower valve body part can choke or open the valve, and a valve body spring, wherein the upper valve body part will displace the lower valve body part to choke the valve when the pressure of the fluid is increased, and the valve body part spring will displace the lower valve body part in the opposite direction to open the valve by relief of the pressure of the fluid.

7. (Previously Presented) The tool of Claim 5, wherein the piston is adapted to be

displaced by the fluid supplied to the tool when the valve has been choked, or be displaced in the opposite direction by a piston spring, positioned in an upper annular space, formed in the passage of the tool, after the valve has opened.

8. (Previously Presented) The tool of Claim 7, wherein the piston is sleeve-shaped, positioned between an upper shoulder formed in the passage of the tool, and a shoulder element located in the upper annular space and formed with a length which enables the piston to extend from the upper shoulder into the upper annular space located in an extension above a lower shoulder formed at the lower end of the upper annular space.

9. (Previously Presented) The tool of Claim 1, wherein the piston and the second housing element are rotationally connected in one direction.

10. (Previously Presented) The tool of Claim 9, wherein the connection between the piston and the second housing element is formed by a ratchet mechanism comprising catch elements locking against, or running freely across, a third guide formed at the upper end of the second housing element, so that the second housing element is subjected to rotation when the piston is displaced down the tool, but not subject to rotation when the piston is displaced back up the tool.

11. (Previously Presented) A tool adapted for changing the direction of drilling with drilling equipment comprising a drill string, drill string sub, drilling engine and drill bit, wherein the tool is positioned between the drill string and the drill string sub and wherein the tool comprises:

housing elements, which are connected to one another, and wherein the tool has a passage for fluid, and wherein the tool is equipped with a hydraulic piston having a set of cooperating guides where the guides are arranged for, by the pistons axial displacement, a forced guiding of the rotation of a first housing element with respect to the other housing elements, and where necessary fluid pressure for moving the piston is



obtained by choking the fluid flow through the tool and wherein a lower intermediate housing element and a lower housing element are connected by a one direction rotatable connection, and wherein the piston is adapted to be displaced by the fluid supplied to the tool when the valve has been choked, or be displaced in the opposite direction by a piston spring, positioned in an upper annular space, formed in the passage of the tool, after the valve has opened, and wherein the lower housing element has a lower annular space arranged thereto, for fluid which is displaced from the upper annular space, and wherein the annular spaces communicate by means of channels extending between the annular spaces respectively, and wherein the flow of displaced fluid can be controlled by a check valve and a choke valve placed in the respective channels;

a valve comprising:

a valve seat formed at the upper end of a bore adapted to provide a passage through the piston,

a valve body and

a valve mechanism adapted for choking and opening the valve by increase and relief, respectively, of the fluid pressure in the tool.

12. (Previously Presented) The tool of Claim 11, wherein the lower annular space has a displaceable annular space body arranged thereto.

13. (Previously Presented) The tool of Claim 6, wherein the valve body and the upper valve body part are formed with bores, so that a cable can be drawn through the passage of the tool.

14. (Previously Presented) The tool of Claim 1, wherein the one direction rotational connection between the housing elements comprises a roller bearing adapted for rotation in one direction and opposing rotation in the opposite direction in any rotational position.

15. (Previously Presented) The tool of Claim 1, further comprising a second passage for fluid defined by an inner wall of the first housing element and an outer wall of the second housing element, wherein a choke valve is disposed within the second passage for controlling the speed of rotation of the tool.

16. (Previously Presented) A tool for changing the direction of drilling with drilling equipment, wherein the tool is configured to change the direction of drilling in an infinitely variable manner in response to a change in flow rate of a drilling fluid.

17. (Previously Presented) The tool of Claim 16, further comprising means for changing the direction of drilling in an infinitely variable manner.

18. (Previously Presented) The tool of Claim 16, further comprising means for controlling the speed of rotation of the tool.

19. (Currently Amended) A method for changing the direction of drilling with drilling equipment, wherein ~~the drilling equipment comprises a drill string, bent sub, drilling engine, drill bit, and a tool is positioned between the~~ disposed in a drill string and the bent sub and a drilling fluid is being injected through the drill string at a first flow rate to facilitate drilling in a first direction, comprising:

increasing the flow rate of drilling fluid to a second flow rate, wherein the tool changes the direction of drilling from the first direction to any desired second direction in response to the increase in flow rate; and

decreasing the flow rate flow rate of drilling fluid to the first flow rate when the second direction is reached.

20. (New) The tool of Claim 5, wherein the valve mechanism is formed by a valve body part adapted for displacement along the valve body, so that the valve body part can choke or open the valve, and a valve body spring, wherein the valve body part will displace along the valve body when a flow rate of the fluid is increased, and the valve

body part spring will displace the valve body part in the opposite direction to open the valve when the flow rate of fluid is decreased.

21. (New) The tool of Claim 20, wherein the valve body is formed with a bore, so that a cable can be drawn through the passage of the tool.

22. (New) The tool of claim 7, wherein the second housing element comprises a first and a second annular space arranged thereto, for fluid which is displaced from the first annular space; the annular spaces communicate by channels extending between the annular spaces respectively; and the flow of displaced fluid can be controlled by a check valve and a choke valve placed in the respective channels.

23. (New) The tool of Claim 22, wherein a displaceable annular space body is disposed in the second annular space.

**REMARKS**

This is intended as a full and complete response to the Final Office Action dated February 6, 2004, having a shortened statutory period for response set to expire on May 6, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-23 remain pending in the application after entry of this response. Claims 16-19 are rejected and claims 6 and 11-13 are indicated to be allowable by the Examiner. Claims 1, 16, and 19 have been amended and new claims 20-23 have been added. No new matter has been added by the amendments or new claims. Reconsideration of the rejected claims is requested for reasons presented below.

In the specification, the paragraphs [0001] and [0022] have been amended to correct minor editorial problems. No new matter has been added by the amendments.

Claims 16-19 stand rejected under 35 USC 102(b) as being anticipated by *Portman* (U.S. Patent No. 6,561,289). Applicant respectfully traverses the rejection in regard to claims 16-18. *Portman* does not disclose a tool, wherein "wherein the tool is configured to change the direction of drilling ... in response to a change in flow rate of a drilling fluid" as recited in claim 16 or a method, comprising "increasing the flow rate of drilling fluid to a second flow rate, wherein the tool changes the direction of drilling ... in response to the increase in flow rate" as recited in claim 19. In the rejection, the Examiner cites column 13, line 55 through column 14, line 5 of *Portman* as disclosing a tool that changes the direction of drilling in response to a change in flow rate of the drilling fluid. The passage cited by the Examiner discusses the operation of *Portman's* circulating valve. *Portman* discloses the functions of the circulation valve as permitting circulation downhole without operating the drilling motor and permitting circulation flow rates in excess of what can be safely pumped through the drilling motor to move the drill cuttings up the wellbore. (See *Portman*, col. 6, lines 55-63.) Thus, it is not the function of the circulating valve to change the direction of drilling, it is the function of the orienting tool. Operation of the circulation valve is independent of operation of *Portman's* orienting tool and it cannot be said that *Portman's* orienting tool changes the direction of drilling in response to a change in flow rate of a drilling fluid.

*Portman's* orienting tool is actuated by fluid from a hydraulic pump situated in the drill string. (See *Portman*, Figs. 1 and 4A; col. 13, lines 17-40.) The pump, in turn, is powered by an electrical cable that is disposed in the drill string. Thus, *Portman's* orienting tool changes the direction of drilling in response to activation of a hydraulic pump, not a change in flow rate of the drilling fluid pumped through the drill string from the surface. Therefore, claims 16 and 19 are patentable over *Portman*. Claims 17 and 18 also are patentable over *Portman* since they depend from claim 16. New claims 20-23 also are patentable over *Portman* since they depend from allowable claim 1.

Claims 1-5, 7-10, 14, and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Applicant believes the objection is moot in light of the traverse made above with respect to claim 16. Withdrawal of the objection is respectfully requested.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the Final Office Action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this Final Office Action.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed. Having addressed all issues set out in the Final Office Action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,

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William B. Patterson  
Registration No. 34,102  
MOSER, PATTERSON & SHERIDAN, L.L.P.  
3040 Post Oak Blvd. Suite 1500  
Houston, TX 77056  
Telephone: (713) 623-4844  
Facsimile: (713) 623-4846  
Attorney for Applicant(s)